

re-run #7



1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/069,772

DATE: 10/21/2002

TIME: 17:39:45

Input Set : N:\Crf3\Refhold\J069772.raw

Output Set: N:\CRF4\10212002\J069772.raw

**ENTERED**

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1 <110> APPLICANT: Feussner, Ivo
2   Hornung, Ellen
3   Fritsche, Kathrin
4   Peitzsch, Nicola
5 <120> TITLE OF INVENTION: Fatty acid desaturase gene from plants
6 <130> FILE REFERENCE: 0050/50669
7 <140> CURRENT APPLICATION NUMBER: US/10/069,772
8 <141> CURRENT FILING DATE: 2002-05-09
9 <150> PRIOR APPLICATION NUMBER: PCT/EP/00/08222
10 <151> PRIOR FILING DATE: 2000-08-23
11 <160> NUMBER OF SEQ ID NOS: 2
12 <170> SOFTWARE: WordPerfect version 6.1
14 <210> SEQ ID NO: 1
15 <211> LENGTH: 1285
16 <212> TYPE: DNA
17 <213> ORGANISM: Calendula officinalis
18 <220> FEATURE:
19 <221> NAME/KEY: CDS
20 <222> LOCATION: (42)..(1175)
21 <400> SEQUENCE: 1
22   aaaagctcac ttctctgtga gggtaattat atatcaacaa c atg ggt gct ggt ggt 56
23                                     Met Gly Ala Gly Gly
24                                     1           5
25   cgg atg tcg gat cca tct gag gga aaa aac atc ctt gaa cgt gtg cca 104
26   Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile Leu Glu Arg Val Pro
27               10           15           20
28   gtc gat cca ccg ttc acg tta agc gat ctg aag aaa gcg att cct acc 152
29   Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys Lys Ala Ile Pro Thr
30               25           30           35
31   cat tgc ttt gag cga tct gtc atc cgg tca tca tac tat gtt gtt cat 200
32   His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser Tyr Tyr Val Val His
33               40           45           50
34   gat ctc att gtt gcc tat gtc ttc tac tac ctt gca aac acg tat atc 248
35   Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu Ala Asn Thr Tyr Ile
36               55           60           65
37   cct ctt att cct aca cct ctg gct tac cta gca tgg ccc gtt tac tgg 296
38   Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala Trp Pro Val Tyr Trp
39               70           75           80           85
40   ttt tgt caa gct agc atc ctc acc ggc ctc tgg gtc atc ggt cac gaa 344
41   Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp Val Ile Gly His Glu
42               90           95           100
43   tgt ggt cac cat gca ttt agc gac tac cag ttg att gat gac att gtt 392
44   Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu Ile Asp Asp Ile Val

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45		105		110		115		
46	gga ttc gtg ctc cat tcg gct ctc ctc acc ccg tat ttc tct tgg aaa							440
47	Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro Tyr Phe Ser Trp Lys							
48		120		125		130		
49	tat agc cac agg aat cac cac gcc aac aca aat tca ctc gat aac gat							488
50	Tyr Ser His Arg Asn His His Ala Asn Thr Asn Ser Leu Asp Asn Asp							
51		135		140		145		
52	gaa gtt tac att cct aaa cgt aag tcg aag gtc aag att tat tcc aaa							536
53	Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val Lys Ile Tyr Ser Lys							
54		150		155		160		165
55	ctt ctt aac aat cca ccc ggg cga gtg ttc act ttg gtg ttt cgg ttg							584
56	Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr Leu Val Phe Arg Leu							
57		170		175		180		
58	act tta gga ttt ccg tta tac ctc tta act aat atc tcg ggc aag aaa							632
59	Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn Ile Ser Gly Lys Lys							
60		185		190		195		
61	tac ggg agg ttt gcc aac cac ttt gat ccc atg agt cca att ttc aac							680
62	Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met Ser Pro Ile Phe Asn							
63		200		205		210		
64	gat cgt gaa cgc gtt caa gtt ttg cta tcc gat ttc ggt ctt ctc gct							728
65	Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp Phe Gly Leu Leu Ala							
66		215		220		225		
67	gta ttt tat gca atc aag ctt ctt gta gca gca aaa ggg gca gct tgg							776
68	Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala Lys Gly Ala Ala Trp							
69		230		235		240		245
70	gta atc aac atg tac gca att cca gta cta ggt gta agc gtg ttc ttc							824
71	Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly Val Ser Val Phe Phe							
72		250		255		260		
73	gtt ttg atc aca tat ttg cac cac acc cat ctc tca ctc cct cat tat							872
74	Val Leu Ile Thr Tyr Leu His His Thr His Leu Ser Leu Pro His Tyr							
75		265		270		275		
76	gat tca acc gaa tgg aac tgg atc aaa ggc gcc tta tca aca atc gat							920
77	Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala Leu Ser Thr Ile Asp							
78		280		285		290		
79	agg gat ttc ggg ttc ctg aat cgg gtt ttc cac gac gtt aca cac act							968
80	Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His Asp Val Thr His Thr							
81		295		300		305		
82	cac gtc ttg cat cat ttg atc tca tac att cca cat tat cat gca aag							1016
83	His Val Leu His His Leu Ile Ser Tyr Ile Pro His Tyr His Ala Lys							
84		310		315		320		325
85	gaa gca agg gat gca atc aag cca gtg ttg ggc gag tac tat aaa atc							1064
86	Glu Ala Arg Asp Ala Ile Lys Pro Val Leu Gly Glu Tyr Tyr Lys Ile							
87		330		335		340		
88	gac agg act cca att ttc aaa gca atg tat aga gag gct aag gaa tgc							1112
89	Asp Arg Thr Pro Ile Phe Lys Ala Met Tyr Arg Glu Ala Lys Glu Cys							
90		345		350		355		
91	atc tac atc gag ccc gat gag gat agc gag cac aaa ggt gtg ttc tgg							1160
92	Ile Tyr Ile Glu Pro Asp Glu Asp Ser Glu His Lys Gly Val Phe Trp							
93		360		365		370		

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94      tac cac aag atg taa tcaaaaaggt gtatgtcaat gcaattgtat gcttaattaa      1215
95      Tyr His Lys Met
96      375
97      gttgttaaac tttctattcc gtgtaataaa ttatcattaa gagaaaaaaaa aaaaaaaaaa      1275
98      aaaaaaaaaa      1285
100 <210> SEQ ID NO: 2
101 <211> LENGTH: 377
102 <212> TYPE: PRT
103 <213> ORGANISM: Calendula officinalis
104 <400> SEQUENCE: 2
105      Met Gly Ala Gly Gly Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile
106      1          5          10          15
107      Leu Glu Arg Val Pro Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys
108      20          25          30
109      Lys Ala Ile Pro Thr His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser
110      35          40          45
111      Tyr Tyr Val Val His Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu
112      50          55          60
113      Ala Asn Thr Tyr Ile Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala
114      65          70          75          80
115      Trp Pro Val Tyr Trp Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp
116      85          90          95
117      Val Ile Gly His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu
118      100         105         110
119      Ile Asp Asp Ile Val Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro
120      115         120         125
121      Tyr Phe Ser Trp Lys Tyr Ser His Arg Asn His His Ala Asn Thr Asn
122      130         135         140
123      Ser Leu Asp Asn Asp Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val
124      145         150         155         160
125      Lys Ile Tyr Ser Lys Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr
126      165         170         175
127      Leu Val Phe Arg Leu Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn
128      180         185         190
129      Ile Ser Gly Lys Lys Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met
130      195         200         205
131      Ser Pro Ile Phe Asn Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp
132      210         215         220
133      Phe Gly Leu Leu Ala Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala
134      225         230         235         240
135      Lys Gly Ala Ala Trp Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly
136      245         250         255
137      Val Ser Val Phe Phe Val Leu Ile Thr Tyr Leu His His Thr His Leu
138      260         265         270
139      Ser Leu Pro His Tyr Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala
140      275         280         285
141      Leu Ser Thr Ile Asp Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His
142      290         295         300
143      Asp Val Thr His Thr His Val Leu His His Leu Ile Ser Tyr Ile Pro

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144	305	310	315	320
145	His Tyr His Ala Lys Glu Ala Arg Asp Ala Ile Lys Pro Val Leu Gly			
146		325	330	335
147	Glu Tyr Tyr Lys Ile Asp Arg Thr Pro Ile Phe Lys Ala Met Tyr Arg			
148		340	345	350
149	Glu Ala Lys Glu Cys Ile Tyr Ile Glu Pro Asp Glu Asp Ser Glu His			
150		355	360	365
151	Lys Gly Val Phe Trp Tyr His Lys Met			
152	370	375		

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/069,772

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TIME: 17:39:46

Input Set : N:\Crf3\Refhold\J069772.raw

Output Set: N:\CRF4\10212002\J069772.raw